

Window Group Activities - 10-5-62 - 10-11-62Non-Vacuum Window

The detailed flight test outline written by [] was reviewed and accepted. All adjustable spacers were completed. A fixture to enable us to mount the non-vacuum window on a shake table to obtain vibration data (if this should become desirable in the future) was also completed.

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Vacuum Window

Ultrasonic Welding: After considerable success last week in welding aluminum to 7" x 10" plate glass we suffered a malfunction of the welding equipment. The Gulton service representative was unable to make the necessary repairs here, and the welding head had to be removed to Gulton. We hope to resume operation by Friday (12 October).

Induction Welding: Results to date are still not consistent. Flow of the gold braze, and wetting of the invar by the braze are improved by using the latest cleaning methods developed by []. We have ordered a quantity of .003" braze rings from Handy & Harman which should improve capillary action by reducing the spacing between the bellows flange and the foil. R. Corish is visiting Lepel today to see if they can offer any suggestions which will improve the consistence of our results.

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Hydrogen Brazing: At present we have on hand twelve (12) tight 7 x 10 foils of which approximately nine are usable. Work is continuing at Quality Heat Treat in the manufacture of additional foils. We have six 14 x 20 foils of which one has been tested and found to be tight. The remainder have not yet been tested.

Resistance Welding: [] are presently at Taylor-Winfield for the purpose of attaching aluminum face plates to the 7 x 10 foils. They report that they have good control of all welding parameters; that their cleaning procedure produces consistent results; and that all pillow samples are tight. The one foil that they had completed as of this morning appeared perfect visually, but indicated leakage when tested. Paul suspects that the fault may be in the testing apparatus rather than in the foil. He will report by telephone as soon as there are any further developments.

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Miscellaneous: The design of the reinforcing rib and heat drain for the 14 x 20 vacuum window is completed. Drawings will be released for quote within the next few days.

Experiments on the cleaning of invar are continuing. Our latest consistent results indicate that we are approaching the surface resistivity obtained with grit cloth. (100 micro-ohms vs 80 micro-ohms for grit cloth).

Work is continuing on the design and fabrication of the Vac-Ion test equipment and the metalized elastomer seal test equipment.

25 YEAR RE-REVIEW

Roy Stoll

Window Group Activities - 10-12-62 - 10-18-62Non-Vacuum Window

Word has been received that windows will be installed beginning 22 October. Final preparations are now being made to arrive on Monday for the purpose of supervising installation. Flight tests are scheduled to begin next week.

Vacuum Window

Ultrasonic Welding: The welding head was returned by Gulton on Tuesday. Since then it has had to be dismantled about four times to correct internal shorts. At this time it is still not operating satisfactorily. The reliability of this apparatus is without doubt the poorest that I have ever seen. I recommend that if possible some action be taken to reduce the down time of the welder. This action may take the form of insisting that Gulton provide a resident serviceman or a duplicate welding apparatus.

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Hydrogen Brazing: [] are at Quality Heat Treat and report that the use of a new technique to braze the band splice has resulted in a considerable improvement in both time and foil appearance. Two 7 x 10 foils have been received and are now being leak checked. One additional 14 x 20 foil has been made. Work on the large foils was delayed due to furnace repair at Quality Heat Treat. It is expected to resume tomorrow.

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Resistance Welding: [] are at Taylor-Winfield engaged in attaching aluminum face plates to the 7 x 10 foils. Paul reports that they have uncovered several details of the resistance welding procedures which may have contributed to previous unreliability. These have been corrected and a 7 x 10 pillow sample was made which was tight. A subsequent effort on a frame, however, was unsuccessful. Work will continue over this weekend. Paul plans to return by Monday morning.

Induction Welding: A visit was made to Handy & Harman on Tuesday during which our bellows to foil brazing difficulties were discussed. As a result of this visit we have made two tight bellows brazes using sterling silver (92.5 Ag, 7.5 Cu). Braze rings were placed on both sides of the invar foil to insure better capillarity. We feel that, although these brazes were tight, the addition of 0.2% Lithium will increase wetting. A sample quantity of lithobraze has therefore been ordered, and will be tried shortly.

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Miscellaneous: A visit was made to Spotwelders, Inc. to familiarize [] with the technique of attaching reinforcing ribs to the invar foil.

The finned heat drain for the 14 x 20 vacuum window was completed. This should allow us adjustability of the inner glass edge temperature so that a uniform glass temperature can be maintained.

Window Group Activities

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October 18, 1962

Work is continuing on arriving at an optimum cleaning schedule for invar.

Vac-Ion pump test assembly is scheduled to be completed by the end of the day. The test itself should commence shortly thereafter

Outgassing and checkout of the vacuum cart is continuing.

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